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EXAMINER

ALOMARI, FIRAS B

ART UNIT PAPER NUMBER

2136

DATE MAILED: 05/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/014,664

Applicant(s)

BRUWER, FREDERICK
JOHANNES

Examiner

Firas Alomari

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05/22/2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 25-60 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 25-60 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 05/22/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 25-30, 30-34, 45, 50-52, 55 and 57-60 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshizawa EP (0311112).

As per claim 25: Yoshizawa discloses a method of securely transferring data from an encoder to a decoder at which is stored a timer relationship value which is established during a learning process of the encoder and decoder and which is dependent at least on a difference between a value of an encoder timer and a value of an decoder timer(See Page 1), the method including the steps of:

(a) At the encoder encrypting a data word, which at least in part is based on timer information generated by the encoder timer to form a transmission word; (Col 4, Lines 47-52)

(b) transmitting the transmission word to the decoder; (Col 4, Lines 52-53)

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(c) at the decoder decrypting the transmission word; and (Col 4, lines 53 through Col 5, line 3 and Col 3, Lines 44-47)

(d) validating the transmission word by using the encoder timer, the decoder timer and their relationship with the stored timer relationship value.(Col 4, lines 53 through Col 5, line 13 and Col 3, Lines 44-50)

As per claim 26: Yoshizawa discloses a method according to claim 25 wherein the timer relationship value in the decoder is updated upon receipt of a valid transmission word to remove any discrepancies in the relationship between the encoder timer, decoder timer and the timer relationship value, without affecting the decoder timer. (Col 9, Lines 16-35)

As per claim 27: Yoshizawa discloses the method according to claim 26 wherein the updating of the timer relationship value is only done when necessary. (Col 9, Lines 36-58)

As per claim 28: Yoshizawa discloses the method according to claim 26 wherein the data word additionally includes at least one of the following: identity-information pertaining to the encoder; command information; utility information; cold boot counter information; fixed code information; encoder power supply information and user derived information. (Col 8, Lines 9-16 and FIG. 4)

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As per claim 29: Yoshizawa discloses the method according to claim 28 wherein the user derived information is variable via one or more inputs to the encoder and is not known to a manufacture of the encoder. (Col 8, lines 41-56)

As per claim 30: Yoshizawa discloses the method according to claim 25 wherein the transmission word includes the encrypted data word and at least one of the following: a cold boot counter value; command information; and identity information pertaining to the encoder.(Col 8, Lines 12-16)

As per claim 34: Yoshizawa discloses the method according to claim 25 which includes the step of forming a plurality of transmission words, each transmission word being different from the other transmission words and being based at least on respective encoder high speed timer information, in response to a single activation of-the encoder. (Col 6, lines 16-26 and Col 9, line 48 through Col 10 Line 1)

As per claim 35: Yoshizawa discloses the method according to claim 25 which includes the step of forming only a single transmission word to be transmitted at least once in response to a single activation of the encoder.(Col 5, Lines 4-18 and FIG. 2(c))

As per claim 45: Yoshizawa discloses the method according to claim 25 wherein a window size is assigned to the decoder and the encoder timer is operated to

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ensure that the encoder timer information does not fall outside the window for a valid transmission of a transmission word in normal operational circumstances.(Col 4, Lines 6-9 and Col 9, Lines 43-52)

As per claim 50: Yoshizawa discloses the method according to claim 25 wherein the transmission data word also includes a timer value that changes fast so that each transmission word in a sequence of transmission words which are transmitted based on a single continuous activation of the encoder, differs from the other transmission words.(Col 9, lines 43-57 and Col 4, lines 12-18)

As per claim 51: Yoshizawa discloses the method according to claim 25 wherein a higher security re-synchronization of the encoder and decoder timers is achieved at least by using the decoder to directly or indirectly, control the activation of the encoder.(Col 7, lines 44-54 and Col 8, Lines 16-24)

As per claim 52: Yoshizawa discloses an apparatus for transferring data which includes an encoder and a decoder and wherein the encoder (FIG. 2(a) item 32) includes a timer (FIG. 2(a) item 20) and an encryption unit for encrypting data which at least in part is based on timer information from the encoder timer (Col 3, lines 21-24 and Col 4, Lines 47-52), thereby to form a transmission word, and the decoder includes a decoder timer (FIG. 2(a) item 31), a receiver unit for receiving the encrypted transmission word (FIG. 2(a) item 33), a decryption unit (FIG. 2(a) item 27) for decrypting the received transmission word to extract, at least, the

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timer information from the encoder(Col 4, lines 53 through Col 5, line 3 and Col 3, Lines 44-47) , and a comparator unit for comparing decrypted encoder timer information to timer information from the decoder, timer using a timer relationship value, to determine the validity of the transmission word .(Col 4, lines 53 through Col 5, line 13 and Col 3, Lines 44-50), the timer relationship value being established during a learning process (Col 4, Lines 6-8 and Col 9, Lines 36-58) of the encoder and decoder and being dependent at least on a difference between a value of the encoder timer and a value of the decoder timer. (Col 3, Lines 44-47)

As per claim 55: Yoshizawa discloses an apparatus according to claim 52 wherein the decoder is assigned a window size which determines acceptable drift between the encoder timer and decoder timer for a valid transmission. (Col 4, Lines 6-9 and Col 9, Lines 43-52)

As per claim 57: Yoshizawa discloses an apparatus according to claim 52 wherein a re-synchronization of the encoder and decoder can be achieved by the decoder providing control signals for the encoder inputs. (Col 7, lines 44-54 and Col 8, Lines 16-24)

As per claim 58: Yoshizawa discloses for use in the method of claim 25, a transmitter which includes an encoder timer (FIG. 2(a) item 20) and an encryption unit for encrypting data which at least in part is based on timer

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information from the encoder timer thereby to form the transmission word (Col 3, lines 21-24 and Col 4, Lines 47-52), and wherein the encoder timer is permitted to run only for a limited period after each activation of the transmitter. (Col 6, Lines 38-52)

As per claim 59: For use in the method of claim 25, a transmitter which includes an encoder timer (FIG. 2(a) item 20) and an encryption unit for encrypting data which at least in part is based on timer information from the encoder timer thereby to form the transmission word (Col 3, lines 21-24 and Col 4, Lines 47-52) and wherein, when the encoder timer runs beyond a predetermined limit, the transmitter will upon a single activation transmit more than one transmission value equivalent to the transmitter being activated twice. (Col 9, Lines 33-39)

As per claim 60: Yoshizawa discloses for use in the method of claim 25, a decoder (FIG. 2 (a) item 33) which includes a timer (FIG. 2 (a) item 38), an input to receive the transmission word (FIG. 2 (a) item 26), a decryption unit to decrypt the transmission word (FIG. 2 (a) item 327) and obtain the transmitted timer information (Col 8, Lines 43-51), memory to store the timer relationship value (Col 9, Lines 3-4) and a comparison unit to compare the transmitted timer information to time information generated by the decoder timer and to the stored timer relationship value (Col 9, lines 6-8), and means, responsive to the comparison unit, to activate an output if certain criteria are met in the comparison. (Col 9, lines 8-12)

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 31-33 and 36-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshizawa EP (0311112) in view of Soenen et al. US (6,028,527).

As per claim 31: Yoshizawa discloses the method according to claim 30 wherein the transmission word includes encrypted command information, timer information and identity information but he doesn't explicitly disclose a cold boot counter value, when included in the transmission word, is transmitted in the clear. However Soenen discloses a method for communication between transmitter and a receiver where he teaches the using of a reset counter to be included in the transmission word (Col 10, Lines 20-25) and transmitting the counter value to the receiver in the clear (Col 11, Lines 49-61). Therefore it would have been obvious to one ordinary skilled in the art at the time the invention was made to modify Yoshizawa system with the teachings of Soenen to include a counter value in the transmission word and transmitting it in the clear. One would be

motivated to do so in order to enable the receiver to synchronize with the transmitter value when needed.

As per claim 32: Yoshizawa doesn't explicitly disclose the method according to claim 25 which includes the step of keeping the encoder and decoder in synchronism using a cold boot counter which is changed each time the encoder is powered up or comes out of reset. However Soenen discloses a method for communication between transmitter and a receiver where he teaches the using of a reset counter to be included in the transmission word and transmitting the counter value to the receiver in the clear (Col 10, Lines 20-25) and he shows using this value to synchronize the transmitter and the receiver (Col 11, Lines 49-61). Therefore it would have been obvious to one ordinary skilled in the art at the time the invention was made to modify Yoshizawa system with the teachings of Soenen to include a counter value in the transmission word and transmitting it in the clear. One would be motivated to do so in order to enable the receiver to synchronize with the transmitter value when needed.

As per claim 33: Yoshizawa doesn't disclose the method according to claim 25 which includes the steps of keeping the encoder and decoder in synchronism using a cold boot counter which is changed each time the encoder is powered up or comes out of reset, and including a count value of the cold boot counter in the transmission word. However Soenen discloses a method for communication

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between transmitter and a receiver where he teaches the using of a reset counter to be included in the transmission word and transmitting the counter value to the receiver in the clear (Col 10, Lines 20-25) and he shows using this value to synchronize the transmitter and the receiver (Col 11, Lines 49-61). Therefore it would have been obvious to one ordinary skilled in the art at the time the invention was made to modify Yoshizawa system with the teachings of Soenen to include a counter value in the transmission word and transmitting it in the clear. One would be motivated to do so in order to enable the receiver to synchronize with the transmitter value when needed.

As per claim 36: Yoshizawa discloses the method according to claim 25 wherein encryption and decryption is performed using a cipher table but he doesn't discloses a learning mode for storing learning information at the decoder which is transferred from the encoder, and deriving a key from the stored information. However Soenen discloses a method for communication between transmitter and a receiver where he teaches the using of a learning mode for storing information at the decoder and deriving key from stored information (Col 20, Line 50 through Col 21 line 26). Therefore it would have been obvious to one ordinary skilled in the art at the time the invention was made to modify Yoshizawa system with the teachings of Soenen to drive the key from the information stored from the learning mode. One would be motivated to do so in order to enable the receiver to decrypt data words received from the transmitter.

As per claim 37: Yoshizawa doesn't disclose a method according to claim 36 wherein the learning information is stored in a first-in-first-out structure. However Soenen discloses a method for communication between transmitter and a receiver where he teaches the using of EEPROM banks in a first in first out structure for storing the learning information (Col 6, Lines 41-49 and Col 22, lines 39-50). Therefore it would be obvious to one ordinary skilled in the art at the time the invention was made to modify Yoshizawa system with the teaching of Soenen to store the learning information in first in first out structure. One would be motivated to do so in order to enable the system in case of too many transmitters being programmed on the same receiver, to assume that the first transmitters programmed (the oldest) are the first to be disabled thus enabling the receiver to recognize the most recent activated transmitters.

5. Claims 38-44,46-49,53 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshizawa EP (0311112) in view of Hiramatsu US (6,009,131).

As per claim 38: Yoshizawa discloses the method according to claim 25 where the timers in the encoder and decoder are manually set and the timer relationship is manually stored but he doesn't disclose the method according to claim 25 which includes, during a learning process, the steps of determining the difference

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between the timer information at the encoder and the timer information at the decoder, and storing the difference as the timer relationship value at the decoder, without affecting the decoder timer value. However Hiramatsu discloses a synchronizer for detecting the time difference between a transmitter and receiver where he teaches the using a difference timer relationship or a threshold (Col 3, Lines 47 and Col 11, lines 18-45). Therefore it would have been obvious to one ordinary skilled at the art at the time the invention was made to modify Yoshizawa system with the teachings of Hiramatsu to include the step of determining the difference between the transmitter and the receiver during the learning process and storing the value at the decoder. One would be motivated to do so in order to enable the system to estimate timing deviation based on the difference between the transmitter and the receiver (Col 2, lines 1-11).

As per claim 39: Yoshizawa discloses the method according to claim 38 wherein multiple encoders are used with a single decoder comprising a single timer and multiple timer relationship values(Col 5, lines 25-40) but he doesn't discloses the multiple timer relationship values determined for each encoder during its learning process. However Hiramatsu discloses a synchronizer for detecting the time difference between a transmitter and receiver where he teaches the using a difference timer relationship or a threshold (Col 3, Lines 47). Therefore it would have been obvious to one ordinary skilled at the art at the time the invention was made to modify Yoshizawa system with the teachings of Hiramatsu to include the step of determining the difference between the transmitter and the receiver

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during the learning process and storing the value at the receiver for each transmitter individually. One would be motivated to do so in order to enable the system to estimate timing deviation based on the difference between the receiver and each one of the transmitters (Col 2, lines 1-11).

As per claims 40 and 41: Yoshizawa doesn't explicitly disclose the method according to claim 39 wherein, if the decoder timer lies within a predetermined window when a valid transmission word is received, the decoder timer is re-synchronized with the encoder timer by automatically adjusting the timer relationship value to remove any discrepancies in the relationship between the timers and the timer relationship value. However Hiramatsu discloses a synchronizer for detecting the time difference between a transmitter and receiver where he teaches automatically adjusting the timer relationship value if the decoder timer lies within a predetermined window when a valid transmission word is received to remove any discrepancies in the relationship between the timers and the timer relationship value (Col 5, Lines 30-64). Therefore it would have been obvious to one ordinary skilled at the art at the time the invention was made to modify Yoshizawa system with the teachings of Hiramatsu to include the step of determining the difference between the transmitter and the receiver during the learning process and storing the value at the decoder. One would be motivated to do so in order to give the system more flexibility in synchronizing timers on both the transmitters and the receiver by providing more fault

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tolerance when there is a slight time difference between the receiver and the transmitters.

As per claim 42: Yoshizawa discloses the method according to claim 41 wherein the re-synchronization is effected by a bi-directional transfer of data between the encoder and decoder. (Col 9, lines 25-28)

As per claims 43 and 54: Yoshizawa doesn't explicitly disclose the method according to claim 25 wherein the timer relationship value or a window is adjusted in size to compensate for drift between the encoder timer and the decoder timer, before validation occurs, such adjustment being based at least on the time period elapsed since the last adjustment of the timer relationship value. However Hiramatsu discloses a synchronizer for detecting the time difference between a transmitter and receiver where he teaches adjusting the timer relationship in size to compensate for drift between the encoder timer and the decoder timer, before validation occurs, such adjustment being based at least on the time period elapsed since the last adjustment of the timer relationship value (Col 5, Lines 30-64 and Col 6, lines 50-57). Therefore it would have been obvious to one ordinary skilled at the art at the time the invention was made to modify Yoshizawa system with the teachings of Hiramatsu to include the step of adjusting the timer relationship value to compensate for the drift between the receiver and transmitter timer. One would be motivated to do so in order to

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enable the system to recognize next incoming transmission even if there is a time difference between the receiver and the transmitter (Col 6, lines 50-57).

As per claim 44: Yoshizawa doesn't explicitly disclose the method according to claim 25 wherein the timer relationship value or a window is adjusted in size to compensate for drift between the encoder timer and the decoder timer, such adjustment being based at least on information about the drift between the encoder timer and the decoder timer determined by analyzing at least two successive valid transmissions received with a period of time elapsed between them and said adjustment being performed before carrying out step (d) on a currently received transmission word. However Hiramatsu discloses a synchronizer for detecting the time difference between a transmitter and receiver where he teaches adjusting the timer relationship in size to compensate for drift between the encoder timer and the decoder timer, before validation occurs, such adjustment being based at least on information about the drift between the encoder timer and the decoder timer determined by analyzing at least two successive valid transmissions (Col 6, lines 19-57 and Col 14, Lines 29-39).

Therefore it would have been obvious to one ordinary skilled at the art at the time the invention was made to modify Yoshizawa system with the teachings of Hiramatsu to include the step of adjusting the timer relationship value to compensate for the drift between the receiver and transmitter timer. One would be motivated to do so in order to enable the system to recognize next incoming

transmission even if there is a time difference between the receiver and the transmitter (Col 6, lines 50-57).

As per claim 46: Yoshizawa discloses the method according to claim 26 wherein the timer relationship value is allowed a window when validation of the transmission word occurs but he doesn't explicitly disclose the timer relationship value is adjusted based on knowledge of drift between the encoder timer, the decoder timer and the time period elapsed since a previous valid transmission of a transmission word. However Hiramatsu discloses a synchronizer for detecting the time difference between a transmitter and receiver where he teaches adjusting the timer relationship value based on knowledge of drift between the encoder timer, the decoder timer and the time period elapsed since a previous valid transmission (Col 6, lines 19-57 and Col 14, Lines 29-39). Therefore it would have been obvious to one ordinary skilled at the art at the time the invention was made to modify Yoshizawa system with the teachings of Hiramatsu to adjust the timer relationship value based on knowledge of drift between the encoder timer, the decoder timer and the time period elapsed since a previous valid transmission. One would be motivated to do so in order to provide the transmitter and the receiver with the ability to stay in synchronization without interruption of transmission due to time difference between the receiver and the transmitter.

As per claim 47: Yoshizawa doesn't explicitly disclose the method according to claim 46 wherein the window size is dynamically adjusted and such adjustment is based on the time period elapsed since the previous adjustment of the timer relationship value. However Hiramatsu discloses a synchronizer for detecting the time difference between a transmitter and receiver where he teaches dynamically adjusting the timer relationship based on the time period elapsed since the previous adjustment of the timer relationship value (Col 13, lines 50-65).

Therefore it would have been obvious to one ordinary skilled at the art at the time the invention was made to modify Yoshizawa system with the teachings of Hiramatsu to include the step of dynamically adjusting the timer relationship value to compensate for the drift between the receiver and transmitter timer. One would be motivated to do so in order to provide the transmitter and the receiver with the ability to stay in synchronization without interruption of transmission due to time difference between the receiver and the transmitter.

As per claim 48: Yoshizawa discloses a method according to claim 47 wherein the window size has a minimum value.(Col 4, lines 6-9 / the difference falls within 20 minutes range meaning minimum value is Zero)

As per claim 49: Yoshizawa discloses a method according to claim 47 wherein the window size has a maximum value .(Col 4, lines 6-9 / the difference falls within 20 minutes range)

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As per claim 53: Yoshizawa doesn't explicitly disclose the apparatus according to claim 52 which includes a unit for adjusting the timer relationship value when a valid transmission word is received to remove at least any drift that has occurred; and any other accumulating discrepancy in the relationship between the encoder timer, decoder timer and the timer relationship value. However Hiramatsu discloses a method to synchronize a transmitter timer with a receiver timer where he teaches using a unit for adjusting the timer relationship value upon the receipt of a valid transmission to remove any drift that has occurred between the encoder and the decoder (Col 13, lines 50-65). Therefore it would be obvious to one ordinary skilled in the art at the time the invention was made to modify Yoshizawa system with teachings of Hiramatsu to include the step of adjusting the timer relationship after the receipt of a valid transmission. One would be motivated to do so in order to enable the system to automatically adjust the time difference between the receiver and the transmitter and therefore synchronization between the transmitter and the receiver is always maintained.

As per claim 56 : Yoshizawa discloses the apparatus according to claim 55 wherein the window size is adjusted manually before receiving any transmission but he doesn't disclose the window size being adjusted before checking the validity of a received transmission word, said adjustment being based at least on the time period elapsed since the reception of a previously received valid transmission word. However Hiramatsu discloses a synchronizer for detecting the time difference between a transmitter and receiver where he teaches

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adjusting the timer relationship before detecting the word in the transmission based on the time period elapsed since the previous adjustment of the timer relationship value (Col 13, lines 50-65). Therefore it would have been obvious to one ordinary skilled at the art at the time the invention was made to modify Yoshizawa system with the teachings of Hiramatsu to include the step of adjusting the timer relationship value before the word validation based on the time period elapsed since the reception of a previously received valid transmission word. One would be motivated to do so in order to enable the receiver to recognize the transmission word even if there is a slight time difference between the transmitter and the receiver.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Firas Alomari whose telephone number is (571) 272-7963. The examiner can normally be reached on M-F from 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, AYAZ SHEIKH can be reached on (571) 272-3795. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Firas Alomari
Examiner
Art Unit 2136

FA


AYAZ SHEIKH
SUPERVISORY PATENT EXAMINER
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